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AMSAT NEWS SERVICE
ANS-263

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

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ANS-263 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 263.01
 >From AMSAT HQ KENSINGTON, MD.
DATE September 20, 2015
To All RADIO AMATEURS
BID: $ANS-263.01

2015 AMSAT Board of Directors Election Results

As a result of the 2015 Board of Directors election, Barry Baines, WD4ASW; Jerry Buxton, N0JY; Drew Glasbrenner, KO4MA; and Bob McGwier, N4HY; will serve on the board for two years.

The First Alternate is Mark Hammond, N8MH and the Second Alternate is Bruce Paige, KK5DO. Both will serve for a term of one year.

The results of the voting with 625 ballots cast are as follows:

Barry Baines, WD4ASW.....475
Jerry Buxton, N0JY.....417
Drew Glasbrenner, KO4MA.....366
Bob McGwier, N4HY.....316

Mark Hammond, N8MH.....289
Bruce Paige, KK5DO.....198
Steve Coy, K8UD.....194
E. Mike McCardel, KC8YLD.....152

Submitted by:
Martha Saragovitz Alan Biddle, WA4SCA
Manager Corporate Secretary

[ANS thanks Alan Biddle, WA4SCA, Corporate Secretary for the above information]

List of Papers & Presentations for the 2015 AMSAT Space Symposium

The 2015 AMSAT-NA Annual Meeting and Space Symposium will be held on the weekend of October 16-18, 2015 at the Crowne Plaza Hotel in downtown Dayton, Ohio.

Currently the following Papers have been proposed.
ALL TITLES ARE TENTATIVE, SUBJECT TO CHANGE, AND SOME MAY ONLY APPEAR IN THE SYMPOSIUM PROCEEDINGS. More current information will be made available as soon as possible.

"APRS Satellites, PSK31 and DTMF/Voice"
Bob Bruninga, WB4APR

"A Modern Approach to Secure Commanding of an Amateur Satellite"
Burns Fisher, W2BFJ (possibly another author will be added)

"Nano-satellite and Amateur Satellite Ground Station Development at the University of the Philippines"
Leo Almazan, AMSAT-Philippines

"SatNOGS - An open satellite ground station network"
I.Charitopoulos, I.Giannelos, E.Kosmas, D.Papadeas, P.Papadeas, M.Papamatthaiou, N.Roussos, V.Tsiligiannis, and A.Zisimatos
Libre Space Foundation, Athens, Greece

"Fox-1C Environmental Testing"
Robert Davis

"DSP on-board Rideshare to Geosynchronous Orbit"
Mike Parker, KT7D, Rincon Research Corp.

Fox Maximum Power Point Tracker
Bryce Salmi

"Preliminary Design of Fox-1E."
Mike KB2GHZ

"HEO/GEO Mission"
Bob McGwier, N4HY

"Virginia Tech Ground Station Update" (Potentially Live Demonstrations)
Zach Leffke

"VT, AMSAT, and ITAR"
Sonya Rowe

"Fox-1 Camera Update"
Seth Hitefield

"VT Ground Station Control Framework"
Paul David

"Software/Cognitive Radio Experiment onboard NASA SCaN JPL SDR"
Deirdre Beggs

"Phase3E Proposed Orbit and Attitude Control Changes."
Andrew Rogers

[ANS thanks Dan Schultz, N8FGV, Symposium Proceedings Editor, for the above information]

September 19 Multiple Amateur Radio Satellite Launch From China

Alan Kung, BA1DU, provided China AMSAT's (CAMSAT) frequency and mode information for the September 19 launch of mulitple satellites on Beijing's new Chang Zheng 6 (CZ-6) rocket from the Taiyuan Satellite Launch Center.

Estimated early Keplerian elements for a September 19 launch are:

XW-2(CAS-3)
1 99999U 15262.96885748 .00004985 00000-0 28395-3 0 00005
2 99999 097.4712 270.8252 0010383 266.0522 270.6644 15.12847565000015

Launch time was planned for 23:00:00 UTC on 2015-09-18 with deployment of the
satellites at 23:15:14 UTC. Technical difficulties postponed the launch until
23:00:00 UTC on 2015-09-19.

The ARRL posted a Word Doc with frequency information from BA1DU at:
http://www.arrl.org/files/media/News/XW-2CAS-3%20Sats.doc

AMSAT-UK has a link to this document at:
http://amsat-uk.org/2015/09/16/camsat-xw-2-satellites-launch-info/

The XW-2A through XW-2F satellites are using the same type of antenna. These
are quarter wavelength deployable monopole whip antennas and made of steel tape, including a UHF uplink antenna and a VHF downlink antenna for each satellite.

Satellite Frequencies (MHz)	TX Power	Modulation
XW-2A (CAS-3A)		
Digital Telemetry: 145.640	20 dBm	9.6/19.2kbps, GMSK
CW Beacon: 145.660	17 dBm	22wpm, CW
Inverting Linear Transponder		
Uplink: 435.030 - 435.050		
Downlink: 145.665 - 145.685	20 dBm	
XW-2B (CAS-3B)		
Digital Telemetry: 145.705	20 dBm	9.6/19.2kbps, GMSK

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CW Beacon:         145.725      17 dBm     22wpm, CW
Inverting Linear Transponder
   Uplink:   435.090 - 435.110
   Downlink: 145.730 - 145.750   20 dBm

XW-2C (CAS-3C)
Digital Telemetry: 145.770      20 dBm     9.6/19.2kbps, GMSK
CW Beacon:         145.790      17 dBm     22wpm, CW
Inverting Linear Transponder
   Uplink:   435.150 - 435.170
   Downlink: 145.795 - 145.815   20 dBm

XW-2D (CAS-3D)
Digital Telemetry: 145.835      20 dBm     9.6/19.2kbps, GMSK
CW Beacon:         145.855      17 dBm     22wpm, CW
Inverting Linear Transponder
   Uplink:   435.210 - 435.230
   Downlink: 145.860 - 145.880   20 dBm

XW-2E (CAS-3E)
Digital Telemetry: 145.890      20 dBm     9.6kbps, GMSK
CW Beacon:         145.910      17 dBm     22wpm, CW
Inverting Linear Transponder
   Uplink:   435.270 - 435.290
   Downlink: 145.915 - 145.935   20 dBm

XW-2F (CAS-3F)
Digital Telemetry: 145.955      20 dBm     9.6kbps, GMSK
CW Beacon:         145.975      17 dBm     22wpm, CW
Inverting Linear Transponder
   Uplink:   435.330 - 435.350
   Downlink: 145.980 - 146.000   20 dBm

DCBB (CAS-3G)
Downlink:   145.475  Digital Telemetry     9.6kbps, GMSK
             437.950  Digital Telemetry     9.6kbps, GMSK

LilacSat-2 (CAS-3H)
CW Beacon    437.200
APRS
  Uplink:    144.390                       AFSK
  Downlink:  144.390                       AFSK
FM Transponder
  Uplink:    144.350                       FM
  Downlink:  437.225                       FM

NUDT-Phone-Sat (CAS-3I)
Downlink:   437.300                       Digital Telemetry 9.6kbps, FSK

The AMSAT-BB reports CW beacon activity from the satellites after launch
although the actual orbit is reported to be running approximately two
minutes
later than the estimated Keps.


[ANS thanks Alan Kung, BA1DU, and CAMSAT for the above information]


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LilacSat-2 Website and Telemetry Decoder Available
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LilacSat-2 website
http://lilacsat.hit.edu.cn/

and telemetry decoder based on GNU Radio
https://github.com/bg2bhc/gr-lilacsat

are now available.

[ANS thanks WEI Mingchuan, BG2BHC for the above information]

SERPENS CubeSat Deployed from ISS

On September 17, 2015 the Brazilian SERPENS CubeSat carrying an amateur radio payload, call sign PY0ESA, was deployed from the International Space Station (ISS).

SERPENS LogoSERPENS is a 3U CubeSat which was developed by students at the University of Brasilia and focuses on meteorological data collection.

The SERPENS Amateur Radio Page shows these downlink frequencies:

• 145.980 MHz using GFSK modulation at 9600 bps and AX.25 protocol transmiting two different beacons. The first occurs every 10 seconds with the message “SERPENS A”. This is implemented for easy identification of the satellite when searching for it. The second beacon is transmitted every 30 seconds and contains the main housekeeping data of the satellite. In addition to the beacons, a simple Store and Forward experiment has been implemented.

• 437.365 MHz using CW/MSK modulation at 1200 bps and CSP protocol.

There is a Store and Forward messaging system compatible with HUMSAT sensors on the frequency of 437.525 MHz, using GMSK modulation at 1200 bps. The HUMSAT transponder will collect data (e.g. wind, humidity, water levels, etc) from Earth based sensors operating on 437.525 MHz, store the data on-board and then transmit it to university ground stations. For more information visit http://www.humsat.org/

SERPENS carries a Pulsed Plasma Thruster for CUbesat Propulsion (PPTCUP) unit developed by UK companies Mars Space Ltd and Clyde Space Ltd in collaboration with the University of Southampton.

The PPTCUP consists of a thruster board and discharge chamber. Overall, the thruster assembly weighs 180 grams including 7g of Teflon fuel and delivers a thrust of 40 micronewtons at a power consumption of 2 Watts. The entire thruster assembly fits into a 90 by 90 by 27-millimeter envelope.The thruster operates at a specific impulse of 608 seconds and in its original version is certified for 1.5 million shots. For durability, the system uses copper-tungsten electrodes. All thruster functions are controlled by a PIC16 microcontroller.

Also deployed with SERPENS from the ISS was the CubeSat S-CUBE designed to observe the Ultraviolet (UV) spectrum during the Orionid meteor shower in October. It does not operate in the Amateur Satellite Service.

SERPENS Amateur Radio Page
http://www.aerospace.unb.br/serpens_radioamateurs

SERPENS information in HTV-5 Cargo Overview
http://www.spaceflight101.com/htv-5-cargo-overview.html

[ANS thanks AMSAT-UK for the above information]

ARISS-Europe Board Elections

According the ARISS-Europe Terms of Reference, Board elections took place in
2015:

- A call for candidatures was circulated to the Member Societies March 2015.
- Candidatures were accepted till the end of May 2015.
- June 4, 2015 four candidates were presented to the Member Societies.
- Till September 1st, 2015, the votes of the Member Societies were collected.
- All four candidates are elected unopposed for a two years term.

Elected Board:

- Emanuele D'Andria, I0ELE, chairman
- Oliver Amend, DG6BCE, technical director
- Bertus Hüsken, PE1KEH, counsellor
- Jean Pierre Courjaud, F6DZP, counsellor.

According the Terms of Reference, the Board elected takes office October 1st,
2015.

Member Societies:

- AMSAT-Belgium (Belgium)
- AMSAT-Francophone (France)
- AMSAT-Italy (Italy)
- AMSAT-SM (Sweden)
- AMSAT-UK (UK)
- ARI (Italy)
- DARC (Germany)
- MARL (Malta) (associate member)
- PZK (Poland)
- RAL (Lebanon) (associate member)
- REF (France)
- REP (Portugal)
- RSGB (UK)
- UBA (Belgium)
- USKA (Switzerland)
- VERON (The Netherlands)

Congratulations to the elected Board and best wishes for a very successful

term of office.

http://www.arrl.org/news/ariss-europe-chairman-retires-successor-elected

(Editors note: Emanuele D'Andria, I0ELE, will assume the duties as ARISS-Europe
chairman. Gaston Bertels, ON4WF is retiring. ANS would like to thank Gaston for his dedicated and enthusiastic support of ARISS and amateur radio.)

[ANS thanks Gaston Bertels, ON4WF for the above information]

AMSAT Events

Information about AMSAT activities at other important events around the country. Examples of these events are radio club meetings where AMSAT Area Coordinators give presentations, demonstrations of working amateur satellites, and hamfests with an AMSAT presence (a table with AMSAT literature and merchandise, sometimes also with presentations, forums, and/or demonstrations).

*Friday, Saturday, and Sunday, October 16-18 2015, AMSAT Symposium in Dayton OH (Dayton Crown Plaza)

*Saturday, 7 November 2015 – Oro Valley Amateur Radio Club Hamfest in Marana AZ

*Saturday and Sunday, 7-8 November 2015 – Stone Mountain Hamfest and ARRL Georgia Section Convention in Lawrenceville GA

*Saturday, 5 December 2015 – Superstition Superfest 2015 in Mesa AZ

[ANS thanks AMSAT-NA for the above information]

ARISS News

Successful Contacts

New Mexico Military Institute, Roswell, NM, direct via N5MMI
The ISS callsign was scheduled to be NA1SS
The scheduled astronaut was Kjell Lindgren KO5MOS
Contact was successful: Wed 2015-09-16 15:48:50 UTC 43 deg.

About The NEW Mexico Military Institute

Located in Roswell, New Mexico, the New Mexico Military Institute offers a rich history and tradition of educating tomorrow’s leaders through a program of
strong, challenging academics, leadership preparation, and character development. Known as “The West Point of the West,” NMMI remains the only state-
supported co-educational college preparatory high school and junior college in

the United States. Serving the educational needs of an international student population, the Institute has an enrollment of approximately 1,000 students who
come from 43 states, the District of Columbia, and 13 foreign nations.

About Roswell

Roswell is located in the southeast New Mexico and is the home of more than 48,000 people. The major industries here are farming, dairying, ranching, manufacturing, petroleum production, and, of course, tourism! Roswell is well
known for the “Roswell Incident”, the alleged crash landing of a UFO Northeast
of town in 1947. Between 1930 and 1941 Roswell was the home of Robert Goddard,
considered the father of the liquid-fueled rocket. Goddard’s research and rocket flight testing in Roswell paved the way for our current space program.
successful.

Listen to partial audio of contact from John Brier, KG4AKV recorded from Raleigh, NC
https://soundcloud.com/johnbrier/iss-new-mexico-military-institute-contact-reception-in-raleigh-nc

Watch
http://www.ariss.org/upcoming-contacts.html
for information about upcoming contacts as they are scheduled.

[ANS thanks ARISS, and Charlie, AJ9N for the above information]

Satellite Shorts From All Over

Three ISS Crew Members, Including Two Hams, Return Safely to Earth

Two radio amateurs -- European Space Agency (ESA) astronaut Andreas Mogensen,
KG5GCZ, Soyuz commander and Russian cosmonaut Gennady Padalka, RN3DT -- plus Kazakh cosmonaut Aidyn Aimbetov, arrived back on Earth on September 12 from the
International Space Station (ISS). Mogensen, Aimbetov, and cosmonaut Sergey Volkov, RU3DIS, had launched in a Soyuz transporter to the ISS on September 2
from Baikonur cosmodrome. Aimbetov -- who had replaced "space tourist" and British singer Sarah Brightman on the Soyuz flight -- and Mogensen took part in
the 10-day ESA mission to test new technologies and conduct a series of scientific experiments. Mogensen is Denmark's first astronaut, while Aimbetov
is the first Kazakh cosmonaut.

The trio undocked from the orbiting complex on September 11 in the Soyuz spacecraft that had been attached to the ISS, leaving the vessel they arrived
in for the station crew. The new Soyuz spacecraft will return NASA astronaut Scott Kelly and cosmonaut Mikhail Kornienko, RN3BF, at the end of their one-year mission next March, along with Volkov.

The return wrapped up 168 days in space for Padalka, who had been on the ISS since March and has logged a record 879 days in space on five flights -- more
than 2 months longer than cosmonaut Sergei Krikalev, U5MIR, the previous record
holder.

The undocking of the returning Soyuz marked the formal start of ISS Expedition
45 under Kelly's command. In addition to Kelly, Kornienko, and Volkov, those onboard the ISS include astronaut Kjell Lindgren, KO5MOS; cosmonaut Oleg Kononenko, RN3DX, and JAXA astronaut Kimiya Yui, KG5BPH.

Three more radio amateurs are scheduled to head to the ISS in December. They are cosmonaut Yuri Malenchenko, RK3DUP; UK astronaut Timothy Peake, KG5BVI, and
Timothy Kopra, KE5UDN.

November 2 will mark the 15th anniversary of a permanent human presence on the
ISS.

[ANS thanks the ARRL Letter, NASA, & European Space Agency for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive addi-tional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the stu-dent rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73,
This week's ANS Editor,
Joe Spier, K6WAO